Charles River Leverages Advanced Technology to Expedite Oncology Drug Discovery and Development

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Utilizing a fully human platform, the company expands in vitro assays to develop a more translational offering

WILMINGTON, Mass.--(BUSINESS WIRE)--Apr. 22, 2025-- Charles River Laboratories International, Inc. (NYSE: CRL), ahead of the American Association for Cancer Research® (AACR) Annual Meeting in Chicago, IL, has announced updates to its comprehensive portfolio of products and services supporting the discovery and development of novel oncology drugs. Based solely on projected population growth, the number of cancer cases is predicted to increase to 35 million by 2050, and approximately 1 in 5 individuals will develop cancer in their lifetime.

“Having worked on over 80 percent of the FDA-approved cancer therapies over the last five years, Charles River has a well-established track record of delivering innovative solutions for oncology researchers,” said Julia Schueler, DVM, PhD, Therapeutic Area Lead, Oncology, Charles River. “We are consistently looking for ways to leverage new technologies and techniques to enhance our ability to deliver life-changing therapeutics to patients.”

Developing a Fully Human Platform
Across several modalities, Charles River is developing and implementing humanized platforms to promote a more effective, translatable way of identifying human-specific drug targets and disease mechanisms, as well as treatments for individual patients. These methodologies include:

3D Tumoroids
Patient-derived xenograft (PDX) models are an increasingly common tool drug developers use when evaluating their new therapies, particularly immunotherapies. Charles River researchers have developed PDX-derived organoids, or tumoroids, which are self-organized 3D cell cultures that aim to mimic the structure, function, and cellular complexity of human organs, making them, in some ways, more translatable than animals.

Julia Schueler is presenting on PDX-derived breast cancer tumoroids on Sunday, April 27, 2025, at 2:00 p.m. and on establishing tumoroids from PDX tissue for in vitro applications on Tuesday, April 29, 2025, at 2:00 p.m.

2D Tumor Killing Assays
Charles River has a range of immune-mediated tumor-killing assays, including cytotoxic T-cell assays and natural killer (NK) cell assays. These assays are analyzed using flow cytometry and live cell imaging with IncuCyte. IncuCyte-based assays quantify the number of viable target cells and can be multiplexed with an apoptotic readout. The selection of target and effector cells can be tailored to the anticipated mechanism of action by selecting from a panel of validated target cell lines.

Ina Rohleff is presenting a comparison of NK-92MI cell line vs. primary NK cells derived from peripheral mononuclear blood cells on Wednesday, April 30, 2025, at 9:00 a.m.

Tumor Microenvironment
Leveraging knowledge of the tumor microenvironment (TME), Charles River is able to target different components of the TME that promote tumor growth and metastasis through anti-tumor immune suppression.

Louise Brackenbury is presenting on leveraging the tumor microenvironment for candidate vaccine screening on Tuesday, April 29, 2025, at 2:00 p.m.

Through a partnership with Cypre, Charles River clients can access Cypre's 3D tumor models to predict therapeutic efficacy and mechanism of action in an accurate tumor microenvironment model. Utilizing Cypre’s patented 3D hydrogel technology and proprietary methods that synergize with Charles River’s PDX tumor model collection, the platform recreates the tumor microenvironment and enables predictive screening of innovative immune-oncology compounds.

Humanized Models
Charles River offers a comprehensive line of humanized mice models to support researchers in replicating human immune interactions and therapeutics responses in controlled, *in vivo* environments. Charles River has expanded its offering of humanized mouse models by introducing two new PBMC models that reduce the onset of graft versus host disease (GvHD). Along those lines, the Company offers a PBMC Select Humanization Kit, giving researchers the ability to leverage pre-qualified PMBCs and engraft specific NCG mice for improved study flexibility.

Eva Oswald is presenting on a PDX biobank in humanized mice and Steve Bronson is presenting on PMBC-humanized, MHC-deficient NCG mice that support human tumor xenographs without rapid onset GvHD*, both beginning on Monday, April 28, 2025, at 9:00 a.m.*

Leveraging AI in Oncology
The influence of artificial intelligence (AI) and machine learning (ML) tools is beginning to impact how researchers analyze cancer research data. Charles River recently collaborated with Revvity, Inc., to determine the feasibility of automatic organ volumetric analysis from 3D ultrasound images of mice using deep learning. Segmentation of 3D imaging data is labor intensive and measurements derived from human-annotated data are prone to inter-user variability and user error. To address these challenges, an AI model was generated to segment spleens from diverse 3D ultrasound images taken from several *in vivo* models.

David Harris is presenting on longitudinal ultrasound imaging as a novel pharmacodynamic marker of graft versus host disease progression in mice with Revvity on Monday, April 28, 2025, at 2:00 p.m.

Charles River is also partnering with Aitia to develop virtual control groups (VCGs) supported by Charles River’s extensive and well-categorized library of PDX data. VCGs, combined with insights from PDXs, allow researchers to predict tumor evolution over time in a specific model, reducing the need

for control animals in future experiments and supporting the principles of the 3Rs (Replacement, Reduction, and Refinement).

Global Support for the RACE Act
As part of our broad oncology portfolio, Charles River, via the ITCC-P4 consortium, offers over 200 annotated, well-characterized, and Research to Accelerate Cures and Equity (RACE) for Children Act-compliant pediatric PDX models to accelerate time to clinic. These are critical models for research, as the U.S. Food and Drug Administration's RACE Act requires nearly all oncology drugs to be tested for pediatric indications before approval.

"Globally, 400,000 children and adolescents develop cancer each year, and approximately one in four cannot be cured with currently available therapies," added Schueler. "Combined with our comprehensive portfolio of oncology drug discovery and development services, we are positioned to assess the safety and efficacy of new oncology treatments, specifically in this critically important patient population."

Charles River is proud to sponsor the Richi Childhood Cancer Foundation at AACR 2025. Attendees can stop at Booth #1642 to learn how to actively support the mission to connect, support, and uplift children, youth with cancer, and survivors through the Richi House.

AACR Annual Meeting 2025: Transforming Oncology Drug Development
Charles River's team has the capability to optimize workflows and maximize success across modalities including small and large molecules, cell and gene therapies, vaccines, and combination therapies. Charles River also recently launched an alliance with NJ Bio to optimize the development and manufacturing of antibody drug conjugates (ADCs.)

During the show, Charles River is presenting a Spotlight on HER2 therapy development on Monday, April 28, 2025 from 3:00-4:00 p.m. Visit Charles River during AACR at Booth #1642 during the show, and visit criver.com to schedule a meeting, view a full schedule of activities, and explore oncology resources.

About Charles River
Charles River provides essential products and services to help pharmaceutical and biotechnology companies, government agencies, and leading academic institutions around the globe accelerate their research and drug development efforts. Our dedicated employees are focused on providing clients with exactly what they need to improve and expedite the discovery, early-stage development, and safe manufacture of new therapies for the patients who need them. To learn more about our unique portfolio and breadth of services, visit www.criver.com.

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